In the Claims:

Please amend the claims so that the pending claim set reads as follows:

1-13 (Cancelled).

14 (Previously Presented). An arrangement, comprising:

an electrical stimulator adapted to apply a current to at least one pair of electrodes, the electrodes being positioned on at least one portion of a subject;

an analog to digital (A/D) converter adapted to measure voltage distributions resulting from the applied current; and

a computer system adapted to detect an abnormality or an inconsistency within the at least one portion of the subject by generating continuous, real time internal impedance data, the internal impedance data indicating the impedance change within the subject wherein the impedance change is associated with at least one of:

a change in at least one characteristic of a blood vessel within the subject, and

a presence of a foreign object within the at least one portion of the subject.

15 (Original). The arrangement of claim 14, wherein the impedance change associated with the change in the at least one characteristic of the blood vessel is at least one of: a change in a fluid flow rate within the at least one portion of the subject, and a change in a fluid volume within the at least one portion of the subject.

16 (Original). The arrangement of claim 15, wherein the fluid includes blood.

17 (Original). The arrangement of claim 15, wherein the at least one portion of the foreign object comprises a metal material.

18 (Previously Presented). The arrangement of claim 14, wherein the computer system generated continuous, real time internal impedance data comprises a continuous, real time internal impedance map to detect the abnormality or inconsistency within the subject, and wherein the impedance map indicates a location of the impedance change within the subject.

19 (Original). The arrangement of claim 14, wherein the computer system generates a plurality of static internal impedance maps to detect the abnormality or inconsistency within the subject, and wherein the impedance maps indicate the impedance change within the subject.

20 (Original). The arrangement of claim 14, wherein the subject is a human being, and wherein the computer system is further adapted to detect the abnormality or the inconsistency within the human being by generating the internal impedance data over a predetermined range of frequencies.

21 (Original). The arrangement of claim 14, wherein the at least one portion of the subject is a portion of a brain of the subject.

22 (Original). The arrangement of claim 14, wherein the at least one portion of the subject is a portion of a torso of the subject.

23 (Original). The arrangement of claim 14, wherein the electrical stimulator is a function generator.

24 (Original). The arrangement of claim 14, wherein the A/D converter is a thirty-two channel, twenty-four bit A/D converter.

25 (Original). The arrangement of claim 24, wherein the computer system is adapted to obtain spectral electrical impedance tomography recordings and electroencephalography recordings, simultaneously.

26 (Previously Presented). An arrangement, comprising:

an electrical stimulator; a switch coupled to the electrical stimulator;

a plurality of electrodes positioned on at least one portion of a subject, wherein each of the electrodes is coupled to the switch;

an analog to digital (A/D) converter coupled to the switch and to each of the electrodes; and

a computer system adapted to detect an abnormality or inconsistency within the subject by generating continuous, real time internal impedance data, the internal

impedance data indicating an impedance change within the at least one portion of the subject, wherein the impedance change is associated with at least one of:

a change in at least one characteristic of a blood vessel within the subject, and

a presence of a foreign object within the at least one portion of the subject.

27 (Original). The arrangement of claim 26, wherein the impedance change associated with the change in the at least one characteristic of the blood vessel is at least one of: a change in a fluid flow rate within the at least one portion of the subject, and a change in a fluid volume within the at least one portion of the subject.

28 (Original). The arrangement of claim 27, wherein the fluid includes blood.

29 (Original). The arrangement of claim 27, wherein at least a portion of the foreign object comprises a metal material.

30 (Previously Presented). The arrangement of claim 26, wherein the computer system generated continuous, real time internal impedance data comprises a continuous, real time internal impedance map to detect the abnormality or inconsistency within the subject, and wherein the impedance map indicates a location of the impedance change within the subject.

31 (Original). The arrangement of claim 26, wherein the computer system generates a plurality of static internal impedance maps to detect the abnormality or inconsistency within the subject and wherein the impedance maps indicate the impedance change within the subject.

32 (Original). The arrangement of claim 26, wherein the subject is a human being, and wherein the computer system is further adapted to detect the abnormality or the inconsistency within the human being by generating the internal impedance data over a predetermined range of frequencies.

33 (Original). The arrangement of claim 26, wherein the at least one portion of the subject is a portion of a brain of the subject.

34 (Original). The arrangement of claim 26, wherein the at least one portion of the subject is a portion of a torso of the subject.

35 (Original). The arrangement of claim 26, wherein the electrical stimulator is a function generator.

36 (Original). The arrangement of claim 26, wherein the switch is a thirty-two channel matrix switch.

37 (Original). The arrangement of claim 26, wherein the A/D converter is a thirty-two channel, twenty-four bit A/D converter.

38 (Original). The arrangement of claim 37, wherein the computer system is adapted to obtain spectral electrical impedance tomography recordings and electroencephalography recordings, simultaneously.

39 (Original). The arrangement of claim 26, wherein the computer system further is coupled to the electrical stimulator.

40 (Previously Presented). An arrangement for use within a magnetic resonance imaging environment, comprising:

an electrical stimulator;

a switch coupled to the electrical stimulator via a filter;

a plurality of electrodes positioned on at least one portion of a subject, wherein each of the electrodes is coupled to the switch; an analog to digital (A/D) converter coupled to the switch and to each of the electrodes; and

a computer system coupled to the switch and to the A/D converter, wherein the electrical stimulator applies a current to at least one pair of the electrodes, and the A/D converter measures voltage distribution and a current distribution resulting from the applied current, wherein the computer system is adapted to detect an abnormality or inconsistency within the subject by generating continuous, real time internal impedance data, the internal impedance data indicating an impedance change within the at least one portion of the subject, and wherein the impedance change is associated with at least one of:

a change in at least one characteristic of a blood vessel within the subject, and

a presence of a foreign object within the at least one portion of the subject.

41 (Original). The arrangement of claim 40, wherein the impedance change associated with the change in the at least one characteristic of the blood vessel is at least one of: a change in a fluid flow rate within the at least one portion of the subject, and a change in a fluid volume within the at least one portion of the subject.

42 (Original). The arrangement of claim 41, wherein the fluid includes blood.

43 (Original). The arrangement of claim 41, wherein the at least one portion of the foreign object comprises a metal material.

44 (Previously Presented). The arrangement of claim 40, wherein the computer system generated continuous, real time internal impedance data comprises a continuous, real time internal impedance map to detect the abnormality or inconsistency within the subject, and wherein the impedance map indicates a location of the impedance change within the subject.

45 (Original). The arrangement of claim 40, wherein the computer system generates a plurality of static internal impedance maps to detect the abnormality or inconsistency within the subject, and wherein the impedance maps indicate the impedance change within the subject.

46 (Original). The arrangement of claim 40, wherein the subject is a human being, and wherein the computer system is further adapted to detect the abnormality or the inconsistency within the human being by generating the internal impedance data over a predetermined range of frequencies.

47 (Original). The arrangement of claim 40, wherein the at least one portion of the subject is a portion of a brain of the subject.

48 (Original). The arrangement of claim 40, wherein the at least one portion of the subject is a portion of a torso of the subject.

49 (Original). The arrangement of claim 40, wherein the electrical stimulator is a function generator.

50 (Original). The arrangement of claim 40, wherein the switch is a thirty-two channel matrix switch.

51 (Original). The arrangement of claim 40, wherein the A/D converter is a thirty-two channel, twenty-four bit A/D converter.

52 (Original). The arrangement of claim 51, wherein the computer system is adapted to obtain spectral electrical impedance tomography recordings and electroencephalography recordings, simultaneously.

53 (Original). The arrangement of claim 40, wherein the computer system is coupled to the electrical stimulator.

54 (Original). The arrangement of claim 40, wherein the computer system and the electrical stimulator are positioned externally form a magnetic resonance imaging room, and wherein the switch, the A/D converter and the electrodes are positioned inside of the magnetic resonance imaging room.

55 (Previously Presented). An arrangement, comprising:

means for applying a current to at least one pair of electrodes that are positioned on at least one portion of a subject;

means for measuring voltage distributions resulting from the applied current; and

a computer system adapted to detect an abnormality or inconsistency within the subject by generating continuous, real time internal impedance data, the internal impedance data indicating an impedance change within the at least one portion of the subject, wherein the impedance change is associated with at least one of:

a change in at least one characteristic of a blood vessel within the subject, and

a presence of a foreign object within the at least one portion of the subject.

56 (Original). The arrangement of claim 55, wherein the impedance change associated with the change in the at least one characteristic of the blood vessel is at least one of: a change in a fluid flow rate within the at least one portion of the subject, and a change in a fluid volume within the at least one portion of the subject.

57 (Original). The arrangement of claim 56, wherein the fluid includes blood.

58 (Original). The arrangement of claim 56, wherein the at least one portion of the foreign object comprises a metal material.

59 (Previously Presented). The arrangement of claim 55, wherein the computer system generated continuous, real time internal impedance data comprises a continuous, real time internal impedance map to detect the abnormality or inconsistency within the subject, and wherein the impedance map indicates a location of the impedance change within the subject.

60 (Original). The arrangement of claim 55, wherein the computer system generates a plurality of static internal impedance maps to detect the abnormality or inconsistency within the subject, and wherein the impedance maps indicate the impedance change within the subject.

61 (Original). The arrangement of claim 55, wherein the subject is a human being, and wherein the computer system is further adapted to detect the abnormality or the inconsistency within the human being by generating the internal impedance data offer a predetermined range of frequencies.

62 (Original). The arrangement of claim 55, wherein the at least one portion of the subject is a portion of a brain of the subject.

63 (Original). The arrangement of claim 55, wherein the at least one portion of the subject is a portion of a torso of the subject.

64 (Original). The arrangement of claim 55, wherein the means for applying the current comprises an electrical stimulator.

65 (Original). The arrangement of claim 64, wherein the electrical stimulator is a function generator.

66 (Original). The arrangement of claim 55, wherein the means for measuring the voltage distributions comprises an A/D converter.

67 (Original). The arrangement of claim 66, wherein the A/D converter is a thirty-two channel, twenty-four bit A/D converter.

68 (Original). The arrangement of claim 55, wherein the computer system is adapted to obtain spectral electrical impedance tomography recordings and electroencephalography recordings, simultaneously.

69-79 (Cancelled).

80 (Currently Amended). A method of detecting an abnormality or an inconsistency, comprising the steps of:

positioning a plurality of electrodes on at least one portion of a subject;

applying a current to at least one pair of the electrodes;

measuring voltage distributions resulting from the applied current; and

detecting, using a computer system, the abnormality or inconsistency within the subject by generating continuous, real time internal impedance data which indicates an impedance change within the at least one portion of the subject, wherein the impedance change is associated with at least one of:

a change in at least one characteristic of a blood vessel within the subject, and

a presence of a foreign object within the at least one portion of the subject.

81 (Original). The method of claim 80, wherein the impedance change associated with the change in the at least one characteristic of the blood vessel is at least one of: a change in a fluid flow rate within the at least one portion of the subject, and a change in a fluid volume within the at least one portion of the subject.

82 (Previously Presented). The method of claim 80, wherein generating continuous, real time internal impedance data comprises generating a continuous, real time internal impedance map that indicates that an impedance change within the subject has occurred.

83 (Original). The method of claim 80, wherein the internal impedance data is generated using a plurality of static internal impedance maps that indicate the impedance change within the subject.

84 (Original). The method of claim 80, wherein the subject is a human being, and wherein the computer system is further adapted to detect the abnormality or the inconsistency within the human being by generating the internal impedance data over a predetermined range of frequencies.

85 (Original). The method of claim 80, further comprising the step of simultaneously obtaining spectral electrical impedance tomography recordings and electroencephalography recordings from the subject.

86 (Currently Amended). A method of detecting an abnormality or inconsistency within a magnetic resonance imaging environment, comprising the steps of:

positioning a plurality of electrodes on at least one portion of a subject;

applying a current to at least one pair of the electrodes;

filtering the current before the current is transmitted inside the magnetic resonance imaging environment;

measuring voltage distributions resulting from the applied current; and

detecting, using a computer system, an abnormality within the subject by generating continuous, real time internal impedance data that indicates an impedance change within the at least one portion of the subject, wherein the impedance change is associated with at least one of:

a change in at least one characteristic of a blood vessel within the subject, and

a presence of a foreign object within the at least one portion of the subject.

87 (Original). The method of claim 86, wherein the impedance change associated with the change in the at least one characteristic of the blood vessel is at least one of: a change in a fluid flow rate within the at least one portion of the subject, and a change in a fluid volume within the at least one portion of the subject.

88 (Previously Presented). The method of claim 86, wherein generating continuous, real time internal impedance data comprises generating a continuous, real time internal impedance map that indicates the impedance change within the subject.

89 (Original). The method of claim 86, wherein the internal impedance data is generated using a plurality of static internal impedance maps that indicate the impedance change within the subject.

90 (Original). The method of claim 86, wherein the subject is a human being, and wherein the computer system is further adapted to detect the abnormality or the inconsistency within the human being by generating the internal impedance data over a predetermined range of frequencies.

91-99 (Cancelled).